CO_2 and CH_4 far exceed the natural range over the last 650,000 years. The rate of growth in atmospheric concentration of GHGs is considered unprecedented (IPCC 2007, p. 24). The recent publication by Canadell et al. (2007) indicates that the growth rate of atmospheric CO_2 is increasing rapidly. An increasing CO_2 concentration is consistent with results of climate-carbon cycle models, but the magnitude of the observed atmospheric CO_2 concentration appears larger than that estimated by models. The authors suggest that these changes characterize a carbon cycle that is generating stronger-than-expected and sooner-than-expected climate forcing. What also is unprecedented is the potential for continued sea ice loss into the 21st century based on the physics of continued warming due to external forcing, and the accelerated impact of the ice albedo feedback as more open water areas open. Consideration of future loss of sea ice does not depend only on the sea ice observational record by itself. However, current sea ice loss, which now averages about 10 percent per decade over the last 25 years, plus the extreme loss of summer sea ice in 2007, is a warning sign that significant changes are underway, and data indicate that these extremes will continue into the foreseeable future.

Issue 6: Regulatory Mechanisms

Comment 41: Treaties, agreements, and regulatory mechanisms for population management of polar bears exist and are effective; thus there is no need to list the species under the Act.

Our response: The Service recognizes that existing polar bear management regulatory mechanisms currently in place have been effective tools in the conservation of the species; the ability of the species as a whole to increase in numbers from low populations, as discussed in our response to Comment 1, associated with over-hunting pressures of the mid 20th century attest to such effectiveness. As discussed under Factor D, there is a lack of regulatory mechanisms to address the loss of habitat due to reductions in sea ice. We acknowledge that progress is being made, and may continue to be made, to address climate change resulting from human activity; however, the current and expected impact to polar bear habitat indicates that in the foreseeable future, as defined in this rule, such efforts will not ameliorate loss of polar bear habitat or numbers of polar bears.

Comment 42: The Service did not consider existing local, State, National, and International efforts to address climate change (e.g., the Kyoto Protocol or United Nations Framework Convention on Climate Change) and is incorrect in concluding that there are no known regulatory mechanisms effectively addressing reductions in sea ice habitat. Furthermore, the Service failed to consider the probability of a global response to growing demands to deal with global climate change.

Our response: We have included discussion of domestic and international efforts to address climate change in the ''Inadequacy of Existing Regulatory Mechanisms'' (Factor D) section. While we note various efforts are ongoing, we conclude that such efforts have not yet proven to be effective at preventing loss of sea ice. The Service's ''Policy for Evaluation of Conservation Efforts When Making Listing Decisions'' (68 FR 15100) provides guidance for analyzing future conservation efforts and requires that the Service only rely on efforts that we have found will be both implemented and effective. While we note that efforts are being made to address climate change, we are unaware of any programs currently being shown to effectively reduce loss of polar bear ice habitat at a local, regional, or Arctic-wide scale.

Comment 43: The Service should evaluate the recent Supreme Court ruling that the U.S. Environmental Protection Agency (EPA) has the authority under the Clean Air Act to regulate GHGs.

Our response: The Service recognizes the leading role the EPA plays in implementing the Clean Air Act. However, specific considerations regarding the recent Supreme Court decision are beyond the scope of this decision.

Comment 44: The effort to list the polar bear is an inappropriate attempt to regulate GHG emissions. Any decision to limit GHG emissions should be debated in the open and not regulated through the ''back door'' by the Act.

Our response: The Service was petitioned to evaluate the status of polar bears under the Act. In doing so, we evaluated the best scientific and commercial information available on present and foreseeable future status of polar bears and their habitat as required by the Act. The role of the Service is to determine the appropriate biological status of the polar bear and that is the scope of this rule. Some commenters to the proposed rule suggested that the Service should require other agencies (e.g., the EPA) to regulate emissions from all sources, including automobiles and power plants. The science, law, and mission of the Service do not lead to such action. Climate change is a worldwide issue. A direct causal link between the effects of a specific action and ''take'' of a listed species is well beyond the current level of scientific understanding (see additional discussion of this topic under the ''Available Conservation Measures'' section).

Comment 45: Listing of the polar bear is more about the politics of global climate change than biology of polar bears.

Our response: The Service was petitioned to list polar bears under the Act and we evaluated the best available scientific and commercial information available on threats to polar bears and their habitat as required by the Act. The role of the Service is to determine the appropriate status of the polar bear under the Act, and that is the scope of this rule.

Issue 7: Listing Justification

Comment 46: Justification for listing is insufficient or limited to few populations, and thus range-wide listing is not warranted.

Our response: This document contains a detailed evaluation of the changing sea ice environment and research findings that describe the effect of environmental change on the declining physical condition of polar bears, corresponding declines in vital rates, and declines in population abundance. We acknowledge that the timing, rate and magnitude of impacts will not be the same for all polar bear populations. However, the best available scientific information indicates that several populations are currently being negatively affected, and projections indicate that all populations will be negatively affected within the foreseeable future, such that the species will be in danger of extinction throughout all or a significant portion of its range within that timeframe.

Since the proposed rule was published (72 FR 1064), the USGS completed additional analyses of population trajectories for the Southern Beaufort Sea population (Hunter et al. 2007), and updated population estimates for the Northern Beaufort Sea (Stirling et al. 2007) and Southern Hudson Bay (Obbard et al. 2007) populations (summarized in the ''Background'' section of this final rule). The USGS also has conducted additional modeling of habitat resource selection in a declining sea ice environment (Durner et al. 2007), and an evaluation of the levels of uncertainty or likelihood of outcomes for a variety of climate models (DeWeaver 2007). Information from these recent USGS analyses is included